CLAIMS

What is claimed is:

Sub B1

1. An imaging apparatus comprising:

first signal processing means for partitioning the level of an analog image signal into a plurality of sections, and for amplifying the analog image signal by a plurality of gains according to each section, at least two of the sections having different corresponding gains; and

second signal processing means for converting the analog image signal amplified by the different gains into a first digital signal, and for non-linearly gamma-correcting the first digital signal according to each section.

2. The imaging apparatus of claim 1, wherein the first signal processing means comprises:

an analog-to-digital converter for converting the analog image signal into a first digital signal for partitioning the analog image signal level into the plurality of sections;

a gain selector for selecting the corresponding gain from the plurality of different gains according to each section, and for outputting the selected gain; and

an amplifier for amplifying the analog image signal by the gain output from the gain selector.

3. The imaging apparatus of claim 2, wherein the plurality of different gains are provided by a microcomputer.

4. The imaging apparatus of claim 2, wherein the plurality of different gains are approximately inversely proportional to the luminance level of the analog image signal.

5. The imaging apparatus of claim 1, wherein the second signal processing means comprises:

an analog-to-digital converter for converting the image signal amplified by the plurality of different gains into a second digital signal; and

a gamma corrector for non-linearly gamma-correcting the second digital signal according to each section.

6. The imaging apparatus of claim 1, further comprising a chrominance controller for controlling chrominance gain of the non-linearly gamma corrected digital output of the second signal processing means.

7. The imaging apparatus of claim 6, wherein the chrominance controller comprises:

a low pass filter for passing a low-frequency component of the non-linearly gamma corrected digital output of the second means, to output a luminance signal;

a chrominance gain selector for partitioning the level of the luminance signal into a plurality of second sections, and for selectively outputting a corresponding second gain among a plurality of different second gains according to each section;

a high pass filter for passing a high frequency component of the non-linearly gamma corrected digital output of the second means, to output a chrominance signal;

a multiplier for multiplying the chrominance signal by the corresponding second gain from the chrominance gain selector;

an adder for adding the output of the multiplier to the luminance signal;

a divider for dividing the output of the adder by approximately 2; and

a clipper for outputting a digital 0 if the output of the divider is less than 0, and for outputting the maximum value of the output of the second signal processing means if the output of the divider is greater than the maximum value of the output of the second signal processing means.

8. The imaging apparatus of claim 7, wherein the plurality of different second gains are approximately inversely proportional to the level of the luminance signal.

9. An imaging apparatus comprising:

an amplifier for amplifying an analog image signal by a predetermined gain;

an analog-to-digital converter for converting the amplified analog image signal into a digital signal;

a chrominance controller for controlling chrominance gain of the converted output of the analog-to-digital converter; and

a digital signal processor for processing the output of the chrominance controller.

10. The imaging apparatus of claim 9, wherein the chrominance controller comprises:

a low pass filter for passing a low-frequency component of the converted output of the analog-to-digital converter, to output a luminance signal;

a chrominance gain selector for dividing the level of the luminance signal into a plurality of sections, and for selectively outputting a corresponding gain among the plurality of different gains according to each section;

a high pass filter for passing a high frequency component of the converted output of the analog-to-digital converter, to output a chrominance signal;

a multiplier for multiplying the chrominance signal by the corresponding gain output from the chrominance gain selector;

an adder for adding the output of the multiplier to the luminance signal;

a divider for dividing the output of the adder by a factor; and

a clipper for outputting a digital 0 if the output of the divider is less than 0, and for outputting the maximum value of the output of the analog-to-digital converter if the output of the divider is greater than the maximum value of the output of the analog-to-digital converter.

11. The imaging apparatus of claim 10, wherein the plurality of different gains are approximately inversely proportional to the level of the luminance signal.

12. The imaging apparatus of claim 10, wherein the factor is approximately 2.

13. An image signal processing method comprising:

partitioning the level of an analog image signal into a plurality of sections, and amplifying the image signal by a plurality of different gains according to each section, at least two of the sections having different corresponding gains; and

converting the image signal amplified by the plurality of different gains into a first digital signal, and non-linearly gamma-correcting the first digital signal according to each section.

14. The method of claim 13, wherein partitioning comprises:

converting the analog image signal into a first digital signal for partitioning the analog image signal level into the plurality of sections:

selecting the corresponding gain among the plurality of different gains according to each section; and

amplifying the analog image signal by the selected gain.

15. The method of claim 14, wherein the plurality of different gains are provided by a microcomputer.

16. The method of claim 14, wherein the plurality of different gains are approximately inversely proportional to the luminance level of the analog image signal.

17. The method of claim 13, wherein converting comprises:

converting the image signal amplified by the plurality of different gains into a second digital signal; and

non-linearly gamma-correcting the second digital signal according to each section.

18. The method of claim 13, further comprising controlling chrominance gain of the non-linearly gamma-corrected second digital signal.

Sub B1

19. The method of claim 17, wherein controlling comprises:

passing a low-frequency component of the non-linearly gamma-corrected digital signal, to output a luminance signal;

partitioning the level of the luminance signal into a plurality of second sections, and selecting a corresponding second gain among a plurality of different second gains according to each second section;

passing a high-frequency component of the non-linearly gamma-corrected digital signal, to output a chrominance signal;

multiplying the chrominance signal by the corresponding selected second gain;

adding the result of the multiply to the luminance signal;

dividing the result of the add by approximately 2; and

clipping to 0 if the result of the division is less than 0, and clipping to the maximum value of the gamma-corrected digital signal if the result of the division is greater than the maximum value of the gamma-corrected digital signal, and outputting the result.

20. The method of claim 19, wherein the plurality of second gains are approximately proportional to the luminance level of the analog image signal.